

8. *Aphodius lividus* Oliv. Dung beetle.
9. *Araecerus fasciculatus* (De G.). Fruit beetle.
10. *Monocrepidius exsul* Sharp. Click beetle.
11. *Gonocephalum seriatum* (Boisd.) Ground beetle.

Insects belonging to the species numbered (4) to (11) were represented by comparatively few specimens.

The piles of dead insects thrown out of the ditch attracted predators in great numbers. I have arranged these in the order of their abundance.

1. *Dactylosternum abdominale* (Fab.)
2. *Philonthus longicornis* Steph.
3. *Oxytelus* sp.
4. *Saprinus lugens* Er.
5. *Colobicus parilis* Pasc.

### **Tarsonemus ananas** Tryon, **A Mite That Is Becoming a Serious Pest of Pineapples in Hawaii**

BY J. F. ILLINGWORTH

(Presented at the meeting of February 7, 1929)

While investigating the so-called Kauai disease of pineapples, early in the 1929 season, I discovered that many of the calyx cavities contained several sorts of mites. One species of these, which appeared to be able to cause considerable damage to the fruit, I determined as above. This mite was first discovered, under similar conditions in pineapples, in Queensland, in 1898, by Mr. Henry Tryon. His complete report on the subject was published in the Queensland Agricultural Journal, v. III, pp. 458-467, 1898.

Mr. Tryon's description of the injury to pineapple fruits by this mite appears to exactly fit what is known as Kauai disease in Hawaii. This name came about from the fact that the trouble was first discovered here on the island of Kauai. Briefly, this disease is a dry rot affecting one or more eyes of the fruit—fruitlets, Tryon calls them. As the fruit increases in size, there is more or less distortion, because of the dry, dead area, and this usually cracks open. The dry cavities are coated with the grey-green spores of the fungus *Penicillium*.

Inside the calyx cavities, on diseased fruits, there is considerable evidence of the work of the mites. Brown abrasions are seen

on the inner surface of the calyx lobes, and ulcers of varying sizes are present in the flower tubules. These tubules are three in number, and extend deeply into the white pulp of the placental area of the ovary.

The Tarsonemus mites do not appear to congregate in any considerable numbers anywhere on the pineapple plant. Yet, I have found them distributed over almost every part of it. When the fruit buds first form, the mites gather between the leaf scales of the tiny tops. Later, as the flowers open, they migrate into the calyx cavities. This is probably the only place that they do any serious harm. Mites belonging to this genus are recorded as pests of strawberries, oats, wheat, grasses, rice, ferns, tea, rubber, peppers, potatoes, sugar cane, etc.

During January, 1929, I experimented with various emulsions, nicotine sulphate, sulfur-tobacco dust, etc., applied to the young tops, before the flowers opened. Several months later, when the fruits were nearly ready to pick, I took careful counts of mite-injured fruit, but could see no appreciable result. The main difficulty is that the mites are so well covered by the closely imbricated parts of the plant that surface applications do not reach them. The best time to apply remedies is undoubtedly when the fruit buds are very young. The mites congregated between the scales of the tiny tops are more exposed than at any other period. It is important, however, to apply treatments before the flowers open.

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### The Black Widow Spider

BY J. F. ILLINGWORTH

(Presented at the meeting of July 11, 1929)

This poisonous species, *Latrodectes mactans* (Fabr.), commonly known as the black widow or hourglass spider, has spread with remarkable rapidity in the islands. It appears to particularly favor pineapple-growing areas, especially where mulching paper is used.

The first record of this pest in Hawaii is by Hadden, who found it at Koko Head November 25, 1925. He later reported finding it at Waikiki. April 16, 1926, I collected specimens in an old pineapple field at Waianae. Soon after, it was discovered by various individuals in widely separated localities, Pearl Harbor, Lanikai, etc.